

## Application for United States Patent

of

Leland James Wieschuegel, *et al.*

for

5 User-specified Time-based Proxy Firing in Online Auctions

## CROSS-REFERENCE TO RELATED APPLICATIONS

(CLAIMING BENEFIT UNDER 35 U.S.C. 120)

This application is related to US patent applications Serial Numbers

10 \_\_\_\_\_ and \_\_\_\_\_ (to be amended when Serial Numbers are  
assigned), docket numbers AUS9-2000-0736-US1 and AUS920010029US1, filed on  
\_\_\_\_\_ and \_\_\_\_\_, respectively by Leland James Wieschuegel,  
*et al.*

## FEDERALLY SPONSORED RESEARCH

## AND DEVELOPMENT STATEMENT

15 This invention was not developed in conjunction with any Federally sponsored  
contract.

## MICROFICHE APPENDIX

Not applicable.

INCORPORATION BY REFERENCE

This application incorporated by reference US patent applications Serial Numbers \_\_\_\_\_ and \_\_\_\_\_ (to be amended when Serial Numbers are assigned), docket numbers AUS9-2000-0736-US1 and

- 5 AUS920010029US1, filed on \_\_\_\_\_ and \_\_\_\_\_, respectively by Leland James Wiesehuegel, *et al.*, in their entirety, including figures.

## BACKGROUND OF THE INVENTION

Field of the Invention

[0001] This invention relates generally to electronic commerce, to conducting a business-to-business interactive offer and bid collection over a computer network, and more specifically to technologies for automatically placing bids in an online offer or auction.

Description of the Related Art

[0002] Prior to the advent of electronic auctioning over computer networks or electronic commerce, auctions were held in a group of gathered bidders with an auctioneer. As shown in Figure 1, an auction (1) is conducted on behalf of a seller (2) by an auctioneer (4). The auctioneer receives a list of items to be sold and possibly a minimum and/or reserve price for those items. During the auction, a plurality of bidders (6) place bids (5) under the guidance and control of the auctioneer (4). In some cases, multiple bidders (9) may pool (8) their bids, and the pooled bids (7) are submitted as a single bid with a combined quantity to the auctioneer (4).

[0003] The auctioneer enforces the rules of the auction, such as minimum bid price and quantities, minimum bid incrementing from the previous bid for a new bid, and time limits for placing bids. Auction bidders are typically qualified as to their ability to complete the purchase should their bid be the winning bid prior to entering the auction room.

[0004] Many online auctioning systems such as "priceline.com" have become very popular for individuals and businesses to use to take advantage of auctions at which they cannot be physically present. Such e-commerce auctions or online auctions are usually conducted over a specified period of time of opening and closing for bids, and  
5 are typically conducted under one of several well-known sets of rules or models.

These common models include "Dutch" auctions, progressive auctions, "Yankee" auctions, single-bid auction, sealed bid auctions, reserve auctions, and hybrids of these types of auctions.

[0005] However, most sales offering and bid systems conducted by manufacturers  
10 of goods or service providers are conducted under a different set of procedures and processes. Turning to Figure 2, a typical trader and broker system for offering and accepting bids is shown (20). In such a business-to-business ("B2B") offering and bidding process (20), a manufacturer or service provider (21) will notify one or more traders (24) of available products or services, quantities, and minimum acceptable bid  
15 values (22). The trader then provides offerings (23') to one or more brokers (25), to which the brokers may respond with bids (23).

[0006] In some cases, bids may be accepted for either partial lots or whole lots of offered products. These offerings (23') and the corresponding bids (23) are collected by the trader, and the trader (24) makes a decision of which bids to accept. The  
20 traders (24) subsequently respond to the manufacturer or service provider (21) with actual orders or purchases (22).

- 5 [0007] Although the B2B offering and bid acceptance process may be conducted similarly to an auction, it is not an auction in the strict sense in that the order fulfillment, or bid acceptance, process is conducted usually by the trader at his discretion. For example, under a typical auction process, the highest qualified bidder may be defined as the bid winner. However, in a B2B offering and bid collection system, the trader may favor the second or third highest bid over the highest bid for the fact that the broker placing the second or third highest bid has preferred business arrangements, such as a longer history of purchasing from the trader or a history of larger volume purchases with the trader.
- 10 [0008] Brokers typically buy on speculation, and sell to end users. Brokers may sell to multiple retailers of products or services, or they may represent a single large retailer of a product or service.
- [0009] Traders are typically commissioned sales professionals, and the structure of their commissions may vary depending on the quantities and the commodities or
- 15 category of products being sold.
- [0010] A particular broker may receive offers from multiple traders who represent a particular manufacturer or service provider. For example, a broker that represents a chain of computer stores may receive computer memory offers from a first trader, software upgrade offers from a second trader, and peripheral offers from yet a third
- 20 trader, all of whom represent the same manufacturer. In response, this broker may bid or place "offers" for products or services in different categories, and must submit

those bids to different traders based on the traders' commodities or categories of products that each trader handles.

[0011] The related patent application disclosed an on-line B2B offer system which is suitable for presenting information to bidders and brokers for products and services on which they are entitled to bid. The online offer system of the related applications allow brokers to act as "bidders", and traders to act as "auctioneers" or "offerors", to draw an analogy to online auctioning systems, while simultaneously meeting the specific needs of B2B commerce transactions.

[0012] "Proxies" are a bidding option for participants in auctions and offers. For example, in a "real" auction, a participant may send an agent to the auction to place bids on his or her behalf. The participant may instruct the agent to counter bid all bids up to a maximum, but if the proxy maximum is reached, not to counter bid above the maximum. During the actual auction, the agent may submit bids to beat the highest current bid until his proxy limit is reached, at which time the agent would not bid further.

[0013] The related applications disclosed an online, business-to-business offering system which also provided a proxy agent function that allowed a participant to specify a maximum proxy value for the system to automatically execute on behalf of the participant. In this case, the software agent polls the current status of the bid level in a particular offer or auction, and immediately places a bid higher than the highest competitive bid until the proxy maximum has been reached.

[0014] While this is efficacious in many respects, especially by allowing the participant to automatically "top" the current bid while not being personally involved in the bid placing, it has some potential shortcomings. The most notable of which is the possibility that two (or more) automatic proxy agents may bid against each other, submitting increasing bids as quickly as possible given the computing and communications resources allow. Thus, the bidding would rapidly escalate until all but one of the proxy agent's maximum limit has been reached.

[0015] This is analogous to a very wealthy participant sending a agent to an auction with a very high proxy limit, and when the bidding opens, the agent quickly escalates the bidding to his maximum limit. This experience may be seen negatively by the other participants of the auction, taking much of excitement and sense of adventure out of the process for the losers. This can lead to dissatisfaction and disillusionment in the process itself, and these unsatisfied participant's may choose not to be involved in future auctions.

[0016] A "real" or live proxy agent usually understands this problem, and will conduct himself in a less conspicuous manner. For example, he may wait to sense the "pace" of the bidding, only placing higher bids after some delay has occurred from the last placed bid. Or, he may wait until a time near the closing of the auction to place a higher bid, allowing other participants to bid against each other during the interim.

However, to date, this problem has not been addressed by online auction and offering systems.

**[0017]** Therefore, there is a need in the art for a system and method which allows a participant in an online auction or offering process to create a proxy agent with instructions for the pace, timing, and limits of automatic proxy bidding.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The following detailed description when taken in conjunction with the figures presented herein provide a complete disclosure of the invention.

5 [0019] FIGURE 1 discloses the well-known arrangement of sellers, auctioneers, and bidders.

[0020] FIGURE 2 shows the common business arrangement between manufacturers, service providers, traders, and brokers.

10 [0021] FIGURE 3 shows an exemplary user interface dialog for configuring a bid parameter set for a proxy agent managed bid.

[0022] FIGURE 4 illustrates the logical flow of the process of the proxy agent.

[0023] FIGURE 5 shows a generalized system architecture of the invention.

[0024] FIGURE 6 sets forth the preferred embodiment of the system of the invention.

15

## SUMMARY OF THE INVENTION

5 [0025] In an on-line auction or offering system, such as an online Dutch, Yankee, or Traditional (interactive) type of auction, bidders enter a proxy which is the maximum dollar amount they are willing to spend for an item. The auction system automatically increases the bid amount on the bidder's behalf in response to counter bids from other bidders, until the proxy value is reached. This system allows the user to specify when the proxy should fire, such as at a specified "clock time", or as a time interval prior to auction close. The advantage for the user is that by specifying a time almost at the close of the auction, they may keep the overall bidding low until just before the auction closes.

10 [0026] Another option of the invention allows the user to specify a delay time for counter bids, up to the proxy maximum, in response to a recent bid from another bidder. This allows the user to automatically participate in the bidding throughout the entire process, but avoids automatic and rapid counter bidding by opposing proxy users. For example, a user may specify a delay of 10 minutes such that the auction system will automatically raise the user's bid to beat the most recent bid after 10 minutes of no bidding activities have been detected.

15 [0027] In another aspect of the invention, the auctioneer, seller or offeror may disable or lock out late firing proxies to avoid potential rapid counter-bidding during the final minutes or seconds of the auction.

20

## DETAILED DESCRIPTION OF THE INVENTION

[0028] It will be recognized by those skilled in the art that certain combinations and integration of the features presented herein may be made without departing from the spirit and scope of the invention. Further, it will be recognized that many of the architectural details disclosed herein are disclosed under the inventor's preferred embodiment in order to enhance the robustness and reliability of the invention, but these details may not be necessary to realize the fundamental functionality of the invention.

[0029] Throughout the disclosure given herein and the following claims, the term "broker" is used to describe a bidding party or bidder, and the term "trader" is used to describe a party who conducts the process of promoting offers to bidding parties. This is nearly analogous to bidder and auctioneer in the context of a traditional auction, respectively, although the offering and bidding process provided by the invention may be used to conduct business-to-business offers as well as traditional types of auctions.

[0030] Even though the following description of the preferred embodiment is given relative to implementation as a feature of function in a specific interactive offering system, it will be recognized by those skilled in the art that the invention may be equally well implemented as a feature or function in conjunction with any on-line auction or offering system.

General Description of the Interactive Offering System

1 [0031] The following general description of the Interactive Offering System ("IOS")  
is summarized from the related application. Turning to FIGURE 5 in which the  
general architecture of the system of the preferred embodiment of the invention is  
5 shown, the Interactive Offer Server ("IOS") (51) is associated with an offering  
database (52). The offering system (50) is included in the larger architecture (59)  
which includes the brokers' consoles (58), the administrator console (56), and the  
traders' consoles (54). All consoles and the interactive offering server may  
communicate either as an integrated package within one computer system, or as  
10 separate computer systems integrated and communicating over a computer network  
such as the Internet.

[0032] In the general architecture of FIGURE 5, the manufacturer or service  
provider's goods availability list (55) is received by the trader consoles (54). The  
trader then creates proposed offerings for bidders or brokers. The proposed offerings  
15 are input into the offering database (52), which are then retrieved by the administrator  
using his administrator console (56).

[0033] The administrator authorizes the proposed offerings and makes a note or  
change in the offering database records to indicate such authorization.

[0034] During the open bidding process, the brokers or bidders may use their  
20 consoles, such as web browser personal computers (58), to retrieve their offerings,  
and to submit bids via the IOS (51). When a broker makes contact with the

interactive offering server, his identity is first verified by an Authentication Server (57), according to the preferred embodiment.

[0035] In response to the broker's request for products or services offerings, the IOS queries the offering database (52) and presents the broker with offerings which

5 contain items to which he or she is entitled to bid. An authentication server (57) is included in the preferred embodiment so as to allow the interactive offering server to authenticate the broker prior to presenting any offerings to the broker. As such, the general architecture (59) as shown in FIGURE 5 provides each broker with one or more offerings which have been authorized.

10 [0036] Turning to FIGURE 6, the detailed organization of the system according to the preferred embodiment is shown. A sales preparation system (60) comprising an IBM Lotus Notes system provides available materials list to the traders via their trader consoles (61), which are networked personal computers also running Lotus Notes applications. These available materials lists could alternatively be simple text file  
15 lists or spreadsheets, as well as database records. Alternatively, the trader consoles (61) may be dedicated computer consoles, web browser computers, or other appropriate computer user interface devices such as wireless web browsers.

[0037] Using a trader console, a trader then filters the available materials list for each broker or bidder to prepare proposed broker offerings to be stored in the IOS  
20 production server (62).

[0038] An administrator may use an administrator's console (64) to query the database of the IOS production server (62) to retrieve and review a trader's proposed

offerings. He may authorize all or some of the proposed offerings, and place those authorized offerings in the IOS database for replication to the IOS staging server (65).

[0039] Posting of the authorized offerings to the IOS staging server (65) is preferably done by a Lotus Notes replicator function. As both the IOS production server (62) and staging server (65) are based on IBM Lotus Notes systems in the preferred embodiment, the replicator is a natural function of Lotus Notes which is easily incorporated and maintained. An IBM Lotus Enterprise Integrator ("LEI"), formerly known as "Notes Pump", then prepares a DB2 database file (66) from the IOS staging server (65).

10 [0040] Further according to the preferred embodiment, all of these previously described systems and components and processes are executed and placed behind a protective data "fire wall" (603) for system security. The posted available offerings for the brokers are replicated to another database outside the firewall, preferably in a DB2 format (67) again. This "outside" database is available for query by at least one  
15 application server (68).

[0041] Also according to the preferred embodiment, a clustered pair of application servers (68) are used to query the outside database (67) for available offerings for brokers. The application servers are provided requests from the brokers via network dispatchers (69). The network dispatchers (69) receive broker requests for offerings  
20 by a proxy server (600). Thus, the brokers may use their broker consoles (602), such as web browser personal computers or wireless web browsers, to query the outside database (67) via a computer network (601) such as the Internet.

[0042] The network dispatchers provide balanced loading to the application servers (68), and they provide for redirection of requests to one of the application servers should the other application server experience a failure. After the brokers receive their offerings of entitled materials or services on which they may bid via their broker  
5 consoles (602), they may post bids which are stored in the outside database (67).

[0043] The posted bids are then replicated from the outside database (67) to the inside database (66) behind the firewall. The LEI then moves those bids, converts them from DB2 format to Lotus Notes format, and stores them in the IOS staging server (65). These bids are further replicated from the Lotus Notes format in the IOS  
10 staging server (65) to the IOS production server (62), where they then may be retrieved and reviewed by the traders using the trader consoles (61). Thus, the entire offering-to-bid process is completed. The traders may then choose to accept or reject each posted bid.

[0044] According to the preferred embodiment, the application servers (68) are web  
15 server hardware platforms, such as IBM RS6000 computers running the IBM AIX operating system, accompanied by the IBM WebSphere product. Java servlets are used to interact with the broker console computers (602), which could be alternately realized in such technology as Microsoft's Active Server Pages or Java server pages.

[0045] Further according to the preferred embodiment, the application servers are  
20 provided with communications capability to an authentication server (57) which may include lists of brokers and passwords against which broker log-in attempts may be validated.

General Proxy Agent Implementation

- 5 [0046] The preferred embodiment of the invention is as a Java servlet class on the IOS server of the related applications. Alternatively, it can be implemented as an object-oriented class of functions on any suitable auction or offering server. It can be implemented as non-object oriented code, as well.
- 10 [0047] According to the preferred embodiment, the bids placed by the participants or bidders are enhanced to include additional parameters regarding proxy and timed firing of the proxy. These parameters are passed with the usual bid information to the IOS server, which then instantiates a proxy agent on behalf of that participant or bidder. The proxy agent instance then remains present in memory, and is activated or run periodically by the server, such as once per minute.
- 15 [0048] Turning to FIGURE 4, when the proxy agent instance (40) is instantiated (41), it receives the bid parameter set (42) for the bidder or participant. Then, the proxy agent checks (43) each auction's bid level for which it is configured to automatically bid by querying the bid or offer database (52), evaluates (44) the proxy firing parameters in the bid parameter set (42) comparing it with the system time (45), and automatically submits (46) a higher bid or bids, if necessary, to one or more auctions. Then, the proxy agent suspends (47) itself until it is resumed some time later by the auction or offering system, such as one minute later.
- 20 [0049] This general process allows the inclusion of several optional proxy controls and limits, as discussed in more detail in the following paragraphs.

Delay Paced Proxy Bidding

**[0050]** Table 1 shows the enhanced bid parameter format for placing a bid with delay paced proxy options:

5

Table 1. Bid Parameters with Delay Paced Proxy

10

```

-----
auction_name="10GB hard drives, SCSI", initial_bid="$10.00",
maximum_bid="$45.00", delay_pace="10 min", increment="$1.00" <CR>
auction_name="floppy drives, USB", initial_bid="$2.00",
maximum_bid="$6.50", delay_pace="20 min", increment="$0.25" <CR>
-----

```

15

20

**[0051]** According to this example bid, shown in comma separated variable ("CSV") format, the proxy agent would initially place a bid into a specified auction, such as the "10GB hard drives" auction, for an initial bid value, such as \$10.00. It would then periodically monitor the highest bid placed in this auction, wait until no higher bids have been placed for at least a specified delay\_pace period, such as 10 minutes, and then place a new bid equal to the current highest bid plus a specified increment, such as \$1.00. If the proxy agent reaches its maximum authorized bid, such as \$45.00 in this example, it would not place any further bids.

[0052] Table 1 shows a second example for an auction for another commodity, paced at 20 minute bid intervals. As such multiple bids for multiple offerings or auctions can be processed by a single proxy agent, given that the periodic resumption rate of the proxy agent instance is equal to or less than the shortest specified bid period. For example, if a bid delay is specified of 30 seconds, the proxy agent preferably is resumed and run at least every 30 seconds or more often.

#### Scheduled Proxy Bidding

[0053] Table 2 shows an example of a bid parameter set which specifies scheduled proxy bidding:

```

10      -----
          Table 2. Bid Parameters with Scheduled Proxy Bidding
          -----
          auction_name="10GB hard drives, SCSI", initial_bid="$10.00",
          max_bid="$45.00", until="4:00 PM", max_bid="$55.00", until="6:00 PM",
15      max_bid="$70.00", until="close" <CR>
          -----
  
```

[0054] Similar the bid example of Table 1, this bid is formatted in CSV but instead sets a three-period schedule, each period having a different maximum proxy limit. Each time the proxy agent is resumed or run, it will check an auction bid level, such as the "10GB hard drives" auction, and if it needs to place a higher bid and has not exceeded the bid limit for the current time period, it will place a higher bid. Once it

has placed its maximum authorized bid during a time period, the proxy agent will not place any further bids until a new time period with higher limits is entered, or until the close of the auction or offering, whichever occurs first.

[0055] Again, similar to the example of Table 1, multiple auctions may be handled by the proxy agent simply by configuring multiple sets of bid parameters into the bid data.

#### Near-Close ("Last Minute") Proxy Firing

[0056] Table 3 shows a configuration of bid parameters which allows the proxy agent to wait until a certain time before closing of the auction to placing higher bids:

10

-----

Table 3. Bid Parameters with Last Minute Proxy Firing

-----

auction\_name="10GB hard drives, SCSI", initial\_bid="\$10.00",  
max\_bid="\$45.00", within\_close="15 min"<CR>

15

-----

[0057] As in this example, the proxy agent will wait until a specified time before the scheduled close of the auction or offering, such as 15 minutes before closing, and then automatically place bids up to the maximum authorized bid limit, such as \$45.00.

Compound Proxy Controls

**[0058]** The preferred embodiment allows for combinations of the three types of proxy controls previously discussed, simply by combining the parameters provided in the bid itself. For example, one bid proxy may be configured to have three schedule periods, each period having a different maximum bid limit and a different delay pace. Further, a bid may be placed with multiple bid periods with multiple limits up to a specified time before closing, at which time another limit is authorized. Table 4 shows examples of these two bid configurations.

10

Table 4. Bid Parameters with Compound Proxy Instructions

15

```

-----
auction_name="10GB hard drives, SCSI", initial_bid="$10.00",
max_bid="$45.00", until="4:00 PM", delay_pace="10 min",
max_bid="$55.00", until="6:00 PM", delay_pace="5 min",
max_bid="$70.00", until="close", delay_pace="1 min"<CR>

```

20

```

-----
auction_name="floppy drives, USB", initial_bid="$2.00",
max_bid="$4.50", until="4:00 PM",
max_bid="$5.00", until="6:00 PM",
max_bid="$7.00", within_close="15 min"<CR>
-----

```

[0059] FIGURE 3 shows an exemplary user interface dialog (30) to allow a bidder or auction participant to specify any or all of these parameters. The user interface dialog (30) allows the bidder or participant to submit basic bid information (31) such as item part numbers and quantities, for one or more items on which he or she wishes to bid. In the preferred embodiment, the user simply inputs a part number, and the description and quantity are automatically filled by the system as the bidding of the preferred embodiment is accepted in "full lots" only. However, in other systems and businesses, partial lot bidding may be allowed, so the user may be allowed to input or overwrite the suggested quantity.

10 [0060] The bidder also indicates an initial bid value (32) per item, which is then multiplied by the quantity to generate a total bid (33) for that item.

[0061] To realize the present invention, additional user interface parameters for the proxy controls (34) are provided to the user. In the example of FIGURE 3, this may be a language or text field, or alternatively it may be a set of check boxes, radio buttons, drop-down lists, or forms hyperlinked to the dialog (30).

15 [0062] A button or other icon is provided to finalize and submit (35) the bid by transmitting the bid parameter set to the IOS server.

[0063] It will be understood by those skilled in the art and from the foregoing description that various modifications and changes may be made in the preferred embodiment of the present invention without departing from its spirit and scope, such as use of or integration to other on-line offering and auction systems, use of alternate

bidder consoles and document formats, and implementation using alternate programming languages and methodologies. It is intended that this description is for purposes of illustration only and should not be construed in a limiting sense. The scope of this invention should be defined by the following claims.